

Abstract

Provided is a method of manufacturing sputter target assemblies, and the products thereof. The method includes manufacturing a backing plate, the backing plate having a planar top surface and a cylindrical recess therein. Then a near final shape target insert having a frusta-conical rear surface that corresponds to the cylindrical recess of the backing plate and a front surface is manufactured. The target insert has a yield strength greater than that of the backing plate, and a height greater than the depth of the cylindrical recess in the backing plate. Thereafter, the target insert is hot pressed into the cylindrical recess of the backing plate to a state of plastic deformation so as to diffusion bond the target insert to the backing plate and form the target assembly. The target insert protrudes above the planar front surface of the backing plate.